

## Abstract

A method is disclosed for the alignment of free-form surfaces having arbitrary initial positions. The method includes the steps of extracting surface information from two free-form surfaces to determine surface characteristics, partitioning surfaces into regions based on the surface characteristics, and comparing regions on the first free-form surface and the second free-form surface to determine corresponding regions, then these two surfaces are generally aligned. Next at least three pairs of corresponding points from the first and second free-form surfaces are determined from the corresponding regions, and the first and second free-form surfaces are localized to obtain a plurality of corresponding points. The difference between the points in each pair of corresponding points is then determined.